System/Subsystem Specification (S/SS)

Alternate United States National Data Center (Alt US NDC)

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System/Subsystem Specification for Alt US NDC, Revision D, US NDC Phase 2

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1. Scope

1.1 Identification

This System/Subsystem Specification (SSS) defines the system requirements for the Alternate United States National Data Center (Alt US NDC). The Alt US NDC, located at Goodfellow Air Force Base (GAFB), Texas, is used as an alternate for the US NDC located at Patrick Air Force Base (PAFB), Florida.

1.2 System overview

The Alt US NDC system includes all of the US NDC capabilities incorporated in its Phase 2, Build 1 development program. The Alt US NDC system interfaces with the existing Alternate ADSN Data Acquisition System (Alt ADSN DAS) at GAFB.

During periods of mission performance, the Alt US NDC differs from US NDC as follows:

- There will be no GCI router or CMR circuit installed at Goodfellow; therefore, data will not be acquired from the International Data Center (IDC) or Center for Monitoring Research (CMR).
- There will be no data services provided; i.e., data will not be forwarded to external entities.

During standby performance, the Alt US NDC differs from US NDC as follows:

- The Alt US NDC will be operational only in the sense that it will be acquiring data from Headquarters over a wide area network (WAN).
- Pipeline processing will be inactive.

1.3 Document overview

This document is prepared in accordance with data item description (DID) DI-IPSC-81431 for a System/Subsystem Specification. The Phase 2 SRD, Section 10.0 Alternate US NDC contains the only formal requirement for the provision of the Alt NDC. Therefore all SSS requirements trace to N10.0.a “The Alternate US NDC (ALT US NDC) subsystem shall provide a backup capability for the US NDC and shall perform all US NDC data acquisition and data processing”. The US NDC operational requirements document, "Proposal for Alternate US NDC" (PFA) dated May 17, 2000, was the primary source used for generating SSS requirements. Also used as a guidance document are the minutes of the Alt US NDC Working Group meetings.

Section 1.0 provides the scope of the Alt US NDC system and this document. Section 2.0 provides a list of referenced documents. Section 3.0 provides detailed requirements for the system. Section 4.0 describes the requirements’ qualification provisions. Section 5.0 describes the requirements’ traceability from the SRD to the PFA to the SSS requirements. Appendix A provides a list of acronyms used in the SSS.

2. Applicable documents

2.1 Referenced documents

PFA, Proposal for Alternate US NDC, May 17, 2000

SOW, Statement of Work for the United States National Data Center, (Phase 2), Version F, 10 December 2001

DID, Data Item Description, DD Form 1664, Identification Number DI-IPSC-81431, 5 December 1994

SSS, Updated Final System/Subsystem Specification (S/SS) for the United States National Data Center (Phase 2, Build 1), 15 January 2002

SRD, System Requirements Document for the United States National Data Center (Phase 2), Revision 0, Document Number 1002348, 2 July 2001

2.2 Guidance documents

Minutes of the Alt US NDC Work Group Meetings (April 12 through January 10, 2002)

3. Requirements

3.1 Required states and modes

The Alt US NDC system will have two distinct states, Mission Performance and Standby Performance. During Standby Performance, the Alt US NDC will continuously acquire data from the US NDC over a virtual private network connection. Processing results from the US NDC will also be copied to the Alt US NDC in near real time. When the Alt US NDC is required to perform the US NDC mission its state will change to Mission Performance. At that time it will begin acquiring data from primary data sources (e.g. stations) rather than from the US NDC. It will also begin producing processing results rather than acquiring copies of US NDC processing results.

3.2 System capability requirements

This section is separated into categories describing the functional requirements for the capabilities required of the Alt US NDC. Only those requirements that differ from US NDC Phase 2, Build 1 will be discussed.

3.2.1 Data acquisition

The Alt US NDC will acquire data continuously at all times regardless of whether it is performing the mission or not. Normally, during Standby Performance the Alt US NDC will acquire data forwarded from the US NDC over the private communications link between the two systems. Unclassified transmission will occur over the unclassified network only, to avoid sending the same data twice.

As a mission outage occurs and data becomes unavailable from the US NDC, the Alt US NDC will be ready to establish connections with stations and acquire data directly from the stations as they become available.

When the mission is transferred to the Alt US NDC, e-mail capability is required to continue to work from the user perspective as if the mission were still at the US NDC. Mail sent to @usandc.gov (unclassified) or @ndc.Patrick.af.smil.mil (classified) will be delivered to users at the Alt US NDC instead of at the US NDC. As part of transferring the mission, appropriate e-mail inboxes will be transferred to the Alt US NDC so that users will have access to their previously received e-mail. When the mission is transferred back to the US NDC, the e-mail inboxes will be transferred from the Alt US NDC back to the US NDC. This capability relies heavily on GFE networks and domains.

ALTSSS1 The Alternate US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).

ALTSSS2 During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.

ALTSSS3 During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.

ALTSSS4 The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)

ALTSSS5 At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.

ALTSSS6 At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.

ALTSSS7 During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC. .

3.2.2 Data Forwarding and Transfer Integrity

3.2.2.1 Data forwarding

Waveform data is made available to the classified system through data forwarding processes.

ALTSSS8 The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.

3.2.2.2 Data Transfer Integrity

ALTSSS9 The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).

3.2.3 Data processing

The Alt US NDC will only perform data processing during its Mission Performance state. During Standby Performance the Alt US NDC will acquire copies of the processing results produced at the US NDC. These processing results consist of the derived waveforms and alphanumeric data generated by the various pipelines operating at the US

NDC. As the Alt US NDC prepares to revert back to Standby Performance, the results produced at Alt US NDC are copied back to the US NDC.

ALTSSS10 The Alt US NDC shall have the same data processing functionality as the US NDC (reference SSS USNDC Phase 2, section 3.2.4).

ALTSSS11 During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.

ALTSSS12 The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.

ALTSSS13 At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.

ALTSSS14 Manually initiated pipeline processing shall occur at Alt US NDC during mission performance.

3.2.4 Monitoring and control

ALTSSS15 The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).

ALTSSS16 During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.

3.2.5 Event Reporting

ALTSSS17 The Alt US NDC shall have the same event reporting capabilities as the US NDC (reference US NDC SSS, section 3.2.10).

3.3 System External Interface Requirements

The System External Interface Requirements will be documented in the US NDC IRS and derived from the US NDC ICD.

ALTSSS18 The TT LAN shall have read access to the US NDC wide area network (WAN) including the US NDC and Alt US NDC LANs.

3.4 System Internal Interface Requirements

ALTSSS19 The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.

3.5 System Internal Data Requirements

ALTSSS20 The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).

3.6 Adaptation Requirements

There are no specific adaptation requirements for the Alt US NDC.

3.7 Safety Requirements

ALTSSS21 The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, Section 3.7).

3.8 Security and Privacy Requirements

ALTSSS22 The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, Section 3.8).

3.9 System Environment Requirements

ALTSSS23 The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, Section 3.9).

3.10 Computer Resource Requirements

3.10.1 Computer Hardware Resource Utilization Requirements

ALTSSS24 The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).

3.10.2 Computer communications requirements

ALTSSS25 The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.

ALTSSS26 At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.

ALTSSS31 The Alt US NDC shall provide functionality to incorporate unique processed and unprocessed waveform data and associated descriptive records from US NDC archive tapes, as an alternative to

receiving the data across the network. (The same functionality will work in the other direction at the US NDC during mission return to incorporate data from the Alt US NDC archive tapes.)

3.11 System Quality Factors

3.11.1 Reliability

ALTSSS27 The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.

3.11.2 Maintainability

ALTSSS28 The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, Section 3.11.2).

3.11.3 Availability

ALTSSS29 The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, Section 3.11.3).

3.12 Design and Construction Constraints

ALTSSS30 The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.

3.13 Personnel-Related Requirements

There are no specific personnel-related requirements for Alt US NDC.

3.14 Training-Related requirements

There are no specific training-related requirements for Alt US NDC.

3.15 Logistics-Related Requirements

There are no specific logistics-related requirements for the Alt US NDC.

3.16 Other Requirements

There are no specific other requirements for the Alt US NDC.

3.17 Packaging Requirement

There are no specific packaging requirements for the Alt US NDC.

3.18 Precedence and Criticality of Requirements

There is no precedence or criticality of requirements for the Alt US NDC.

4. Qualification Provisions

Table 1 provides the qualification methods for each specification. The qualification methods are one or more of the following:

- Demonstration (D). Verification by demonstration that a requirement is met is based on observing the performance of the software or hardware, where specific inputs have an expected result, when the software is executed on the hardware according to the test procedure
- Inspection (I). Verification by inspection that a requirement is met involves personal examination of hardware, source code, parameter files, and/or other physical manifestations of the software, such as software-generated printouts and diagrams. This technique uses observation/examination of some entity to establish conformity with requirements without the need for analysis, demonstration, or test. Inspection does not involve execution of the software.
- Test (T). Verification by testing that a requirement is met is based on exercising the software or hardware with pre-determined inputs and then recording and analyzing the measurable response to particular stimuli. This technique involves measurements or quantitative observations of the performance of a function or equipment. The software or hardware requirement is verified by comparison with quantitative criteria such as predicted values, range of values, accuracies, or tolerances.
- Analysis (A). Verification by analysis that a requirement is met is based on inference from an examination and analysis of the internal structure of the software and its components. This may be required when a software requirement cannot be directly tested and observed. This technique may require a review or study of the data, mathematical expressions, or software models.

Table 1. Qualification Method

REQUIREMENTS	QUALIFICATION METHOD
ALTSSS1 The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).	D
ALTSSS2 During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.	D
ALTSSS3 During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.	D

REQUIREMENTS	QUALIFICATION METHOD
ALTSSS4 The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)	D
ALTSSS5 At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.	D
ALTSSS6 At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.	D
ALTSSS7 During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC.	D
ALTSSS8 The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.	D
ALTSSS9 The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).	D
ALTSSS10 The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).	D
ALTSSS11 During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.	D
ALTSSS12 The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.	D
ALTSSS13 At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.	D
ALTSSS14 Manually-initiated pipeline processing shall occur at Alt US NDC during mission performance.	D
ALTSSS15 The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).	D
ALTSSS16 During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.	D
ALTSSS17 The Alt US NDC shall have the same event reporting capabilities as the US NDC(reference US NDC SSS, section 3.2.10).	D
ALTSSS18 The TT LAN shall have read access to the US NDC wide area network (WAN) including the US NDC and Alt US NDC LANs.	D

REQUIREMENTS	QUALIFICATION METHOD
ALTSSS19 The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.	I
ALTSSS20 The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).	D
ALTSSS21 The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, Section 3.7).	D
ALTSSS22 The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, Section 3.8.	D
ALTSSS23 The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, Section 3.9).	D
ALTSSS24 The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).	D
ALTSSS25 The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.	D
ALTSSS26 At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.	D
ALTSSS27 The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.	D
ALTSSS28 The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, Section 3.11.2).	D
ALTSSS29 The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, Section 3.11.3).	D
ALTSSS30 The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.	I
ALTSSS31 The Alt US NDC shall provide functionality to incorporate unique processed and unprocessed waveform data and associated descriptive records from US NDC archive tapes, as an alternative to receiving the data across the network. (The same functionality will work in the other direction at the US NDC during mission return to incorporate data from the Alt US NDC archive tapes.)	D

5. Requirements Traceability

Table 2 depicts the traceability between the Phase 2 SRD, each requirement listed in the PFA and the corresponding SSS requirement(s) ordered by PFA paragraph number.

Table 2. Requirements Traceability

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
SRD1			N10.0.a "The Alternate US NDC (ALT US NDC) subsystem shall provide a backup capability for the US NDC and shall perform all US NDC data acquisition and data processing".
	PFA1		3.1 US NDC-A must be capable of assuming, on demand, any and all US NDC spotlight and broad area regional monitoring programs focused on terrestrial or ocean areas.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS8	The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.
		ALTSSS9	The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
		ALTSSS11	During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.
		ALTSSS12	The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS13	At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.
		ALTSSS14	Manually-initiated pipeline processing shall occur at Alt US NDC during mission performance.
		ALTSSS15	The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).
		ALTSSS16	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
		ALTSSS17	The Alt US NDC shall have the same event reporting capabilities as the US NDC (reference US NDC SSS, section 3.2.10).
		ALTSSS19	The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.
		ALTSSS20	The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).
		ALTSSS21	The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.7).
		ALTSSS22	The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.8).
		ALTSSS23	The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.9).
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
		ALTSSS25	The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.
		ALTSSS26	At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.
		ALTSSS27	The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.
		ALTSSS28	The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.2).
		ALTSSS29	The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.3).
		ALTSSS30	The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.
		ALTSSS31	The Alt US NDC shall provide functionality to incorporate unique processed and unprocessed waveform data and associated descriptive records from US NDC archive tapes, as an alternative to receiving the data across the network. (The same functionality will work in the other direction at the US NDC during mission return to incorporate data from the Alt US NDC archive tapes.)

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
	PFA2:		3.2 Until such time as the primary US IMS stations are capable of sending data directly from the station to the IDC, the US NDC-A must be capable of forwarding continuous data to the IDC from these stations according to standards set by the CTBT organization. (As recorded in the April 26 WG meeting minutes, no forwarding to the IDC or CMR will be done. No CMR circuitry will be installed. No GCI communications will be installed.)
		ALTSSS	*None.*
	PFA3:		3.3 US NDC-A must be capable of reporting events of interest to key customers within four hours of their occurrence.
		ALTSSS17	The Alt US NDC shall have the same event reporting capabilities as the US NDC (reference US NDC SSS, section 3.2.10).
	PFA4:		3.4 US NDC-A must be capable of incorporating openly available seismic, hydroacoustic, infrasonic or radionuclide data and data products in its analysis products and reports. (As agreed in the May 10, 2001 WG meeting minutes, the RASA network will not be part of Alt US NDC.)
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS7	During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC.
	PFA5:		3.5 US NDC-A must be capable of archiving and maintaining electronic copies of US NDC and AFTAC subsurface nuclear treaty monitoring databases.
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
	PFA6:		4.1.1 Duplicate the data acquisition and processing capabilities of the US NDC at the US NDC-A.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS7	During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC.
		ALTSSS8	The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.
		ALTSSS9	The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
		ALTSSS11	During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.
		ALTSSS12	The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.
		ALTSSS13	At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.
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		ALTSSS15	The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).
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		ALTSSS17	The Alt US NDC shall have the same event reporting capabilities as the US NDC (reference US NDC SSS, section 3.2.10).
		ALTSSS19	The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.
		ALTSSS20	The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).
		ALTSSS21	The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 2.7).
		ALTSSS22	The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.8).
		ALTSSS23	The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.9).
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
		ALTSSS25	The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.
		ALTSSS26	At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS27	The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.
		ALTSSS28	The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.2).
		ALTSSS29	The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.3).
		ALTSSS30	The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.
		ALTSSS31	The Alt US NDC shall provide functionality to incorporate unique processed and unprocessed waveform data and associated descriptive records from US NDC archive tapes, as an alternative to receiving the data across the network. (The same functionality will work in the other direction at the US NDC during mission return to incorporate data from the Alt US NDC archive tapes.)
	PFA7:		4.1.2 Duplicate the subsurface monitoring of the US NDC at the US NDC-A.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS7	During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC.
		ALTSSS8	The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.
		ALTSSS9	The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
		ALTSSS11	During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.
		ALTSSS12	The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.
		ALTSSS13	At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.
		ALTSSS14	Manually-initiated pipeline processing shall occur at Alt US NDC during mission performance.
		ALTSSS15	The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).
		ALTSSS16	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
		ALTSSS17	The Alt US NDC shall have the same event reporting capabilities as the US NDC (reference US NDC SSS, section 3.2.10).
		ALTSSS19	The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.
		ALTSSS20	The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).
		ALTSSS21	The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 7).
		ALTSSS22	The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.8).
		ALTSSS23	The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.9).
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
		ALTSSS25	The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.
		ALTSSS26	At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.
		ALTSSS27	The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.
		ALTSSS28	The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.2).
		ALTSSS29	The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.3).
		ALTSSS30	The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS31	The Alt US NDC shall provide functionality to incorporate unique processed and unprocessed waveform data and associated descriptive records from US NDC archive tapes, as an alternative to receiving the data across the network. (The same functionality will work in the other direction at the US NDC during mission return to incorporate data from the Alt US NDC archive tapes.)
	PFA8:		4.1.3 Replace both the existing backup facilities located at Goodfellow AFB and at Det 460 within the US NDC-A. (As recorded in the April 26 WG meeting minutes, the backup facility at 460 will continue and the Alt ADSN DAS will continue to operate at Goodfellow AFB.)
		ALTSSS	None.
	PFA9:		4.1.4 Create a US NDC wide area network (WAN) including the US NDC and US NDC-A LANs. The primary US NDC would remain at HQ AFTAC. The TT LAN will have read access to this WAN.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, Section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS8	The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.
		ALTSSS9	The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
		ALTSSS11	During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.
		ALTSSS12	The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS13	At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.
		ALTSSS14	Manually-initiated pipeline processing shall occur at Alt US NDC during mission performance.
		ALTSSS15	The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).
		ALTSSS16	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
		ALTSSS17	The Alt US NDC shall have the same event reporting capabilities as the US NDC (reference US NDC SSS, section 3.2.10).
		ALTSSS18	The TT LAN shall have read access to the US NDC wide area network (WAN) including the US NDC and Alt US NDC LANs.
		ALTSSS19	The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.
		ALTSSS20	The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).
		ALTSSS21	The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.7).
		ALTSSS22	The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.8).
		ALTSSS23	The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.9).
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
		ALTSSS25	The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.
		ALTSSS26	At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.
		ALTSSS27	The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.
		ALTSSS28	The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.2).
		ALTSSS29	The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.3).
		ALTSSS30	The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.
		ALTSSS31	The Alt US NDC shall provide functionality to incorporate unique processed and unprocessed waveform data and associated descriptive records from US NDC archive tapes, as an alternative to receiving the data across the network. (The same functionality will work in the other direction at the US NDC during mission return to incorporate data from the Alt US NDC archive tapes.)

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
	PFA10:		4.1.5 Maintain the US NDC-A under the same configuration management system and to the same specifications as the US NDC. (This is an SOW item).
		ALTSSS	None
	PFA11:		4.1.6 Operate the US NDC-A data acquisition and initial automated pipeline processing continuously.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS7	During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC.
		ALTSSS8	The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.
		ALTSSS9	The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
		ALTSSS11	During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.
		ALTSSS12	The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.
		ALTSSS13	At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.
		ALTSSS14	Manually-initiated pipeline processing shall occur at Alt US NDC during mission performance.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS15	The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).
		ALTSSS16	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
		ALTSSS17	The Alt US NDC shall have the same event reporting capabilities as the US NDC (reference US NDC SSS, section 3.2.10).
		ALTSSS19	The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.
		ALTSSS20	The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).
		ALTSSS21	The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.7).
		ALTSSS22	The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.8).
		ALTSSS23	The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.9).
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
		ALTSSS25	The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.
		ALTSSS26	At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.
		ALTSSS27	The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.
		ALTSSS28	The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.2).
		ALTSSS29	The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.3).
		ALTSSS30	The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.
	PFA12:		4.1.7 Control, monitor and remotely operate the US NDC-A from US NDC under normal operating conditions.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS16	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
	PFA13:		4.1.8 Provide the capability to transfer command and control of US NDC-controlled field stations to the US NDC-A, via the US NDC, when so directed. (As recorded in the April 26, 2001 WG Meeting Minutes, the Alt ADSN DAS will be co-located with the Alt US NDC. Therefore, the command and control transfer will not change from the way it is currently done.)
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2.
	PFA14:		4.1.9 Install additional data forwarders at the US NDC to supply classified and unclassified data under normal operating conditions to the US NDC-A.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
	PFA15:		4.1.10 Include data forwarders at the US NDC-A to supply unclassified and classified data to US NDC as required to complete the US NDC archive in a timely manner after an outage at US NDC.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS25	The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.
		ALTSSS26	At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.
	PFA16:		4.1.11 Until the US IMS field stations are upgraded and can support transmission of data directly to the IDC, include the capability at US NDC-A to forward these data to the IDC. (As recorded in the 26 April, 2001 WG Meeting Minutes, there will be no GCI or CMR circuits installed at Alt US NDC. Therefore, receipt of IDC and CMR data will not be performed at the Alt US NDC. Also as recorded in the meeting minutes, forwarding of data to any external entity will not occur.)
		ALTSSS	None
	PFA17:		4.1.12 Retain the current atmospheric and space monitoring capabilities, including current backup facilities at current locations. Provide secure electronic links between these facilities and US NDC and US NDC-A. (As agreed at the 12 April 2001 Alt US NDC WG, this is outside the scope of this study. These capabilities do not exist on NDC P2B1).
		ALTSSS	None
	PFA18:		4.1.13 Provide the capability at US NDC-A for radionuclide and satellite operations to conduct analysis on dedicated workstations at US NDC-A. (As agreed at the 12 April 2001 Alt US NDC WG, this is outside the scope of this study. These capabilities do not exist on NDC P2B1).

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS	None
	PFA19:		4.1.14 Provide analyst workstations at US NDC-A to support the monitoring mission analysts and evaluators during mandated deployments from the US NDC.
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
	PFA20:		4.1.15 Provide capability at US NDC-A to monitor active spotlights during nondeployment associated outages at US NDC.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS8	The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.
		ALTSSS9	The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
		ALTSSS11	During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.
		ALTSSS12	The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.
		ALTSSS14	Manually-initiated pipeline processing shall occur at Alt US NDC during mission performance.
		ALTSSS15	The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).
		ALTSSS16	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
		ALTSSS17	The Alt US NDC shall have the same event reporting capabilities as the US NDC (reference US NDC SSS, section 3.2.10).

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS19	The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.
		ALTSSS20	The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).
		ALTSSS21	The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.7).
		ALTSSS22	The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.8).
		ALTSSS23	The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.9).
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
		ALTSSS25	The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.
		ALTSSS27	The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.
		ALTSSS28	The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.2).
		ALTSSS29	The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.3).
		ALTSSS30	The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.
	PFA21:		4.1.16 Provide read-only classified access to standby systems; for example Det 137, data processing results stored in the operational system (US NDC or US NDC-A) database tables. (TT is currently meeting this requirement. (Described in the US NDC IRS)
		ALTSSS	*None. (The intent of this requirement is the web-based event functionality that will be part of the future US NDC [post Phase 2 Build 1]).*
	PFA22:		4.1.17 Provide on-site system administrators and database managers during normal duty day and on call during non-duty hours at both US NDC and US NDC-A. (As agreed at the April 12, 2001 Alt US NDC WG meeting, this requirement is outside the scope of SAIC.)
		ALTSSS	None
	PFA23:		4.1.18 Provide capability at US NDC-A to store and access off-line copy of US NDC monitoring archive on very high-density media such as DLT cartridges.
		ALTSSS31	The Alt US NDC shall provide functionality to incorporate unique processed and unprocessed waveform data and associated descriptive records from US NDC archive tapes, as an alternative to receiving the data across the network. (The same functionality will work in the other direction at the US NDC during mission return to incorporate data from the Alt US NDC archive tapes.)

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
	PFA24:		4.2.1 Under normal operating conditions, route continuous waveform data in existing field formats from all USAEDS and IMS field sites directly to the US NDC. (As recorded in the April 26 WG meeting minutes, the Alt ADSN DAS will continue to operate at Goodfellow AFB.)
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS16	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
	PFA25:		4.2.2 Under normal operating conditions, forward all continuous waveform data in approved continuous data handling protocol from US NDC to US NDC-A.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
	PFA26:		4.2.3 Under normal operating conditions, monitor all data acquisition and forwarding activities at US NDC and at US NDC-A from US NDC at HQ AFTAC.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS17	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
	PFA27:		4.2.4 Under normal operating conditions, and until such time as data from the US IMS stations can be transmitted directly to the IDC from the field station, forward US IMS data to the IDC. (As recorded in the 26 April, 2001 WG Meeting Minutes, there will be no GCI or CMR circuits installed at Alt US NDC; therefore, forwarding of data to any external entity will not occur.)
		ALTSSS	None
	PFA28:		4.2.5 Provide the capability at US NDC-A to monitor all data acquisition and forwarding activities when US NDC is shutdown.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS8	The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS9	The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).
	PFA29:		4.2.6 Provide the capability to re-route continuous waveform and radionuclide data directly to the US NDC-A in the event of an outage at US NDC
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS7	During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC.
	PFA30:		4.2.7 Forward unclassified IMS data to US customers from US NDC only. Data flow to these customers will be delayed in the event of a major outage at the US NDC. (Not an Alt US NDC requirement.)
		ALTSSS	None
	PFA31:		4.2.8 Forward all data acquired by US NDC-A during an outage at the US NDC from US NDC-A to the US NDC upon return to operation of US NDC.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS7	During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC.
		ALTSSS26	At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.
	PFA32:		4.3.1 US NDC-A must be capable of performing the AFTAC mission including data acquisition, command and control, pipeline processing, analyst review, evaluation and archiving.
		ALTSSS1	The Alt US NDC shall have the same data acquisition capability as the US NDC (reference US NDC SSS, section 3.2.2).
		ALTSSS2	During mission performance at the Alt US NDC, the Alt US NDC shall acquire data through the local AFTAC-administered network at Goodfellow rather than through the virtual private network connection with the US NDC.
		ALTSSS3	During standby operation at the Alt US NDC, the Alt US NDC shall acquire unprocessed waveform data within 10 minutes of its availability at the US NDC.
		ALTSSS4	The Alt US NDC shall provide an automated check of the completeness of the unprocessed waveform data received from the US NDC during standby to ensure that the Alt US NDC acquires 99.999% of the data forwarded from the primary US NDC. (Data forwarding to the Alt US NDC from the US NDC will be accomplished via a CR to the P2 US NDC.)

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS5	At the time of unplanned mission transfer to the Alt US NDC, the Alt US NDC shall continuously acquire unprocessed waveform data from the primary data source as the data becomes available.
		ALTSSS6	At the time of mission return to US NDC, the Alt US NDC shall transfer any unprocessed waveform data unique to the Alt US NDC to the US NDC.
		ALTSSS7	During mission performance at the Alt US NDC, e-mail sent to US NDC e-mail addresses shall be delivered to users at the Alt US NDC.
		ALTSSS8	The unclassified subsystem shall automatically forward all waveform data to the classified subsystem within 60 seconds of receiving the data at the unclassified Alt US NDC.
		ALTSSS9	The Alt US NDC shall have the same data transfer integrity capability as the US NDC (reference US NDC SSS, section 3.2.3).
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
		ALTSSS11	During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.
		ALTSSS12	The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.
		ALTSSS13	At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.
		ALTSSS14	Manually-initiated pipeline processing shall occur at Alt US NDC during mission performance.
		ALTSSS15	The Alt US NDC shall have the same process monitoring and control capability as the US NDC (reference US NDC SSS, section 3.2.1).
		ALTSSS16	During standby operations, the Alt US NDC shall be monitored and controlled from the US NDC.
		ALTSSS17	The Alt US NDC shall have the same event reporting capabilities as the US NDC.
		ALTSSS19	The Alt US NDC shall implement a DISA-approved secure gateway between its classified and unclassified elements.
		ALTSSS20	The Alt US NDC shall have the same system internal data capabilities as the US NDC (reference US NDC SSS, section 3.5).
		ALTSSS21	The safety requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.7).
		ALTSSS22	The security and privacy requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.8).
		ALTSSS23	The system environment requirements for the Alt US NDC shall be the same as for US NDC (reference US NDC SSS, section 3.9).
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
		ALTSSS25	The Alt US NDC shall be connected to the US NDC via classified and unclassified TCP/IP networks.

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
		ALTSSS26	At the time of mission return to the US NDC, the Alt US NDC shall send all unique processed and unprocessed waveform data to the US NDC, at no less than a 1:1 (data duration/elapsed time) ratio rate, concurrent with new processed and unprocessed waveform data.
		ALTSSS27	The Alt US NDC shall be capable of supporting a mission duration of 24 hours per day, 7 days per week, 365 days per year. During standby operations, data acquisition and archiving shall be accomplished 24 hours a day, 7 days per week, for data sent from the US NDC.
		ALTSSS28	The maintainability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.2).
		ALTSSS29	The availability of the Alt US NDC shall be the same as the US NDC (reference US NDC SSS, section 3.11.3).
		ALTSSS30	The Alt US NDC shall be designed to acquire USAEDS and ASN data via the Alt ADSN DAS.
		ALTSSS31	The Alt US NDC shall provide functionality to incorporate unique processed and unprocessed waveform data and associated descriptive records from US NDC archive tapes, as an alternative to receiving the data across the network. (The same functionality will work in the other direction at the US NDC during mission return to incorporate data from the Alt US NDC archive tapes.)
	PFA33:		4.3.2 Continuously operate US NDC-A automated pipeline processing. Results of US NDC-A pipeline processing for the last 45 days will be available to analysts at either US NDC or US NDC-A.
		ALTSSS10	The Alt US NDC shall have the same data processing functionality as the US NDC (reference US NDC SSS, section 3.2.4).
		ALTSSS11	During standby operation, the Alt US NDC shall store data processing results within 10 minutes after they are available at US NDC.
		ALTSSS12	The Alt US NDC shall provide an automated check of the completeness of the data processing results received from the US NDC to ensure that data are completely duplicated on the standby (receiving) system.
		ALTSSS13	At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.
		ALTSSS14	Manually-initiated pipeline processing shall occur at Alt US NDC during mission performance.
	PFA34:		4.3.3 Deploy analysts and evaluators to US NDC-A to perform the analyst review and evaluation functions during outages expected to last more than 24 hours such as those associated with mandatory evacuation of HQ AFTAC. (As agreed at the 12 April 2001 Alt US NDC WG meeting, this is outside the scope of this study.)
		ALTSSS	None

SRD NO.	PFA NO.	ALTSSS NO.	REQUIREMENTS
	PFA35:		4.3.4 Provide US NDC analysts with the capability to automatically access the US NDC-A database during short outages at the US NDC for preventive maintenance. These outages do not result in total power outage at HQ AFTAC. To provide backup in the event of an unscheduled building-wide power outage at HQ AFTAC, AFTAC could enter into an MOU with the Air Education and Training Command (AETC) if the US NDC-A is located at Goodfellow AFB. This MOU would allow AFTAC to task instructional personnel stationed at the training center at Goodfellow AFB to perform the US NDC analysis functions on request. In the past five years, AFTAC has lost power due to unscheduled outages for less than eight hours per year. (As recorded in the April 26, Alt US NDC WG meeting minutes, this is outside the scope of the Alt US NDC study.)
		ALTSSS	None
	PFA36:		4.3.5 Continue to use established procedures for reporting of events of interest to key customers from US NDC or US NDC-A. (Outside the scope of this study.)
		ALTSSS	None
	PFA37:		4.4.1 Retain the unclassified, 180 day, on-line waveform archive at US NDC. (This seems to be misplaced. It is not an Alt US NDC requirement).
		ALTSSS	None
	PFA38:		4.4.2 Incorporate classified analysis results performed solely at US NDC-A into the US NDC classified archive within 100 hours after the end of an outage at US NDC.
		ALTSSS13	At the time of mission return to US NDC, the Alt US NDC shall send all unique data processing results to the US NDC within 100 hours.
	PFA39:		4.4.3 Provide the capability to acquire a copy of the classified, 45-day, on-line US NDC archive from the US NDC for permanent off-line storage and use at US NDC-A.
		ALTSSS24	The Alt US NDC shall have the same data storage functionality as US NDC (reference US NDC SSS, Section 3.10.2.1 and Section 3.10.2.2).
	PFA40:		4.4.4 Provide on-line archive of US NDC monitoring analyses at US NDC and an off line archive backup copy at US NDC-A.
		ALTSSS24	Alt US NDC shall have the same data storage capability as US NDC (reference US NDC SSS, sections 3.10.2.1 and 3.10.2.2).
	PFA41:		4.4.5 Provide 10 day's on-line storage for all raw data and 100 GB of on-line storage for database information at US NDC-A.
		ALTSSS24	Alt US NDC shall have the same data storage capability as US NDC (reference US NDC SSS, sections 3.10.2.1 and 3.10.2.2).

Appendix A. List of Acronyms

ADSN	AFTAC Distributed Seismic Network
AFTAC	Air Force Technical Applications Center
ASN	AFTAC Southern Network
CMR	Center for Monitoring Research
CR	Change Request
DAS	Data Acquisition Subsystem
DID	Data Item Description
DISA	Defense Information Systems Agency
GAFB	Goodfellow Air Force Base
GB	Gigabytes
GCI	Global Communications Interface
IDC	International Data Center
IMS	International Monitoring System
MOU	Memorandum of Understanding
PAFB	Patrick Air Force Base
PFA	Proposal for Alternate US NDC
SSS	System/Subsystem Specification
SOW	Statement of Work
SRD	Systems Requirements Document
TCP/IP	Transmission Control Protocol / Internet Control Protocol
US NDC	United States National Data Center
US NDC-A	United States National Data Center - Alternate
USAEDS	United States Atomic Energy Detection System
WAN	Wide Area Network
WG	Working Group